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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,935	11/13/2003	Shunji Kamijima	117384	6584
25944	7590	10/06/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			HAN, JASON	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/705,935	KAMIJIMA, SHUNJI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason M Han	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The disclosure is objected to because of the following informalities:
  - a. Page 3, Paragraph 12: grammatical error – “percents” should read as “percent”;
  - b. Page 7, Paragraph 38: grammatical error – “need a step”;
  - c. Page 11, Paragraph 59: grammatical error – “reflectance of about hundred percents on the interface”.

Appropriate correction is required.

### ***Claim Objections***

3. Claim 4 is objected to because of the following informalities: It is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "approximately 80 percent or more" in Claim 4 is a relative term which renders the claim indefinite. The term "approximately 80 percent or more" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what the applicant is claiming as the reflectance for the end face.

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*The following rejections have been based upon a broad interpretation of the claims [MPEP 2111]. The applicant should be aware that the examiner acknowledges the structure of the rod integrator and the disposition of the end face. Regardless, the following references cited are functionally equivalent, and the examiner considers the above limitation a matter of design preference.*

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 5-7, and 9 rejected under 35 U.S.C. 102(b) as being anticipated by Oe et al. (U.S. Patent 5863113).

5. With regards to Claim 1, Oe teaches a rod integrator [Figure 8: (1)] having a reflective surface [Figure 8: (6, 8, 9)] whereby emitted light is incident on an incident-end opening [Figure 8: (7)] from a light source [Figure 8: (4)] and traverses through the rod integrator to an emerging-end opening [Figure 8: (6, 8)]. The end face of an outer periphery of the emerging-end opening being a scattering surface [Figure 8: (6)] that reflects incident light on the end face toward a central face of the rod integrator [Figure 8: central axis defined as a vertical axis perpendicular to the end face (6, 8)].

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6. With regards to Claim 2, Oe teaches the end face being substantially perpendicular to the central axis [Figure 8: central axis defined as a vertical axis perpendicular to the end face (6, 8)].
7. With regards to Claim 5, Oe teaches the rod integrator wherein the scattering surface of the end face includes a plurality of V-grooves having a very small depth [Figure 8: (6)].
8. With regards to Claim 6, Oe teaches the rod integrator wherein the end face further has a reflecting surface around the scattering surface [Figure 8: (8)]. Oe discloses, "the surface of the flat areas 8 of the light guide 1 is preferably an optically flat surface, in particular, to be a mirror surface. The incident light with an incident angle more than the critical reflective angle to the optical flat surface can be reflected without any substantial loss [Column 7, Lines 57-62]."
9. With regards to Claim 7, Oe teaches an illuminator with a light source [Figure 8: (4)] and a rod integrator [Figure 8: (1)] that substantially uniformizes an intensity distribution of the light from the light source [see the last few lines of the Abstract of Oe].
10. With regards to Claim 9, Oe teaches an optical device [Figure 9(a-c)] that includes the rod integrator [Figure 9 (a-c): (1)].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oe et al. (U.S. Patent 5863113) as applied to Claim 1 above, and further in view of Hansen (U.S. Patent 3622231).

Oe teaches a rod integrator as cited above having different blaze angles located on the end face [Figure 8: (6, 8)].

Oe does not teach the blaze angle being defined by a normal of the blaze surface and the central axis, whereby the longer the distance between the blaze surface and the central axis is, the larger the blaze angle is.

Hansen teaches a lens having optics radially symmetrical about a central axis [Figure 2], whereby the optics are at determined angles for transmitting a light at a desired direction [see also Abstract].

It would have been obvious to modify the rod integrator of Oe to incorporate the teaching of Hansen whereby appropriate angles are distributed along the end face in providing a desired effect for the light, in this case, a uniform light distribution. Such optical designs are commonly seen with blaze gratings, fresnel lenses, and/or prismatic surfaces.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oe et al. (U.S. Patent 5863113) as applied to Claim 1 above. As cited above, it remains unclear what the applicant is claiming with respect to the reflectance for the end face, and thereby the examiner requires elucidation. However, it should be noted that the applicant teaches, "The reflectance is preferably 80 percent or more. More preferably,

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forming the reflecting film of aluminum or silver provides a reflectance of 90 percent or more. This allows high light-use efficiency [Page 7, Paragraph 37].” Oe teaches a similar reflecting layer that can be formed by laminating a reflecting film or the like which comprises a film and an evaporated metal such as Ag, Al or the like [Column 7, Lines 44-47]. Oe also discloses, “the surface of the flat areas 8 of the light guide 1 is preferably an optically flat surface, in particular, to be a mirror surface. The incident light with an incident angle more than the critical reflective angle to the optical flat surface can be reflected without any substantial loss [Column 7, Lines 57-62].”

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oe et al. (U.S. Patent 5863113) as applied to Claim 7 above, and further in view of Dewald (U.S. Publication 2002/0135862).

Oe teaches an illuminator as cited above, but does not teach the illuminator being used in a projector in collaboration with a spatial light modulator.

Dewald teaches a projector (display system) with an illuminator [Figure 6] in collaboration with a spatial light modulator [Figure 8: (500)].

It would have been obvious that one could substitute the illuminator of Oe with the one found in the projector of Dewald, ensuring an efficient and evenly distributed light. This is a design preference and such illumination/optical devices are commonly held within the art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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The following references have been cited to further show the state of the art pertinent to the current application:

U.S. Patent 659353 to Pitkin;	U.S. Patent 3170980 to Pritchard;
U.S. Patent 3913872 to Weber;	U.S. Patent 4204881 to McGrew;
U.S. Patent 4750798 to Whitehead;	U.S. Patent 4918583 to Kudo et al.;
U.S. Patent 5050946 to Hathaway;	U.S. Patent 5303084 to Pflibsen et al.;
U.S. Patent 5303322 to Winston et al.;	U.S. Patent 5311360 to Bloom et al.;
U.S. Patent 5506929 to Tai et al.;	U.S. Patent 5581405 to Meyers et al.;
U.S. Patent 5623365 to Kuba;	U.S. Patent 5771328 to Wortman et al.;
U.S. Patent 5917664 to O'Neill et al.;	U.S. Patent 599685 to Goto et al.;
U.S. Patent 6104446 to Blankenbecler et al.;	U.S. Patent 6104453 to Watanabe;
U.S. Patent 6129439 to Hou et al.;	U.S. Patent 6157486 to Benson et al.;
U.S. Patent 6205271 to Bowron et al.;	U.S. Patent 6272269 to Naum;
U.S. Patent 6398368 to Chen;	U.S. Patent 6419365 to Potekev et al.;
U.S. Patent 6454438 to Wada;	U.S. Patent 6536914 to Hoelen et al.;
U.S. Patent 6575580 to Okamori et al.;	U.S. Patent 6591022 to Dewald;
U.S. Patent 6642969 to Tew;	U.S. Patent 6728448 to Schmidt et al.;
U.S. Patent 6795243 to McGettigan et al.;	
U.S. Publication 2001/0008470 to Dewald;	
U.S. Publication 2002/0008791 to Okamori et al.;	
U.S. Publication 2002/0135856 to Penn;	
U.S. Publication 2003/0020839 to Dewald;	



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U.S. Publication 2003/0099108 to Slobodin;

U.S. Publication 2003/0151836 to Davis;

U.S. Publication 2003/0198050 to Yamakazi et al.;

U.S. Publication 2003/0223116 to Amm et al.;


Japanese Document 08-227034 to Kawada et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH



**JOHN ANTHONY WARD**  
PRIMARY EXAMINER